

Paul as the centre passed near that station on the 27th, and the rains were heavy in the northwest. Dangerous winds occurred at stations in the lake region, the highest velocities occurring after the centre had passed to the east of Lake Superior. At Milwaukee the wind attained a velocity of fifty-three miles per hour from the west during the night of the 27th. This storm lost energy rapidly after the center passed to the east of the lake region, and when it was last observed in the lower Saint Lawrence valley on the night of the 28th, the pressure had increased to 29.90 at the centre of disturbance, and no dangerous winds were reported.

IX.—An extended area of low barometer was central in Utah on the 28th, and this depression probably originated to the westward of the Rocky mountains on the 27th. On the 29th it passed almost directly north over Dakota and it was central near the northern boundary of that territory on the morning of the 30th. The last high area observed during the month was at that time immediately to the northeast of this depression, and the course of the low area indicated that the abnormal direction of movement was due to the high area. After the disappearance of the high area on the 30th, the course of ix. changed to easterly and was central north of Lake Superior at the close of the month.

NORTH ATLANTIC STORMS DURING APRIL, 1884.

[Pressure expressed in inches and in millimetres; wind-force by scale of 0–10.]

The tracks of the storms appearing in the north Atlantic ocean during the month have been approximately determined from reports of observations furnished by agents and captains of ocean steamships and sailing vessels, and from other miscellaneous data received at this office up to May 22, 1884.

The observations used are in general simultaneous, being taken each day at 7 a. m. Washington, or 12h. 8m. p. m. Greenwich, mean time.

Of the seven depressions charted, only two, numbers, iii. and iv., are apparently continuations of storms which passed over the north American continent. Numbers i. and ii. are extensions of the tracks of storms which were traced on the chart for the preceding month (March). Numbers v. and vii. are depressions which originated near the coasts of the United States, and which apparently filled up before passing to the eastward of the banks. Number vi. developed near the twenty-fifth meridian and moved towards the British coasts. The first half of the month was characterized by moderate to strong gales and low barometer, the area of low pressures being apparently very extensive and reaching southward to the Azores. During the last half of the month an area of high pressures appears to have spread westward and southward, thus checking the eastward movement of depressions iv., v. and vii. During this period moderate breezes and fine weather prevailed over the Atlantic. The storms traced during the month have moved somewhat south of the usual track of Atlantic storms. That traced as number iii. was notable for the depth of the atmospheric depression, the barometer having fallen to 28.1 (713.7), and for its long duration and storm energy.

The following are descriptions of the depressions charted:

1.—This was a continuation of low area ix. of chart ii. for March. At the close of that month the disturbance was central off the southwestern coast of Ireland; from April 1st to 4th it remained in the region between W. 10° and 15°, and near the fiftieth parallel, the barometer near the centre of depression reading about 29.0 (736.6). On the 5th the centre of disturbance was situated very near the west coast of Ireland, the pressure near the centre having fallen below 29.0 (736.6); the s. s. "Circassian," Lieutenant W. H. Smith, R. N. R., commanding, reported: 5th, in N. 55° 0', W. 12° 30', barometer 28.93 (734.8), wind ne., force 4; bark "Esmeralda," J. C. Anderson, jr., commanding, in N. 55° 23', W. 7° 41', had barometer 28.82 (732.0), wind s., force 2; while vessels between N. 51° and 47°, and W. 13° and 20°, had westerly and northwesterly winds, with pressure varying from 29.0 (736.0) to 29.3 (737.3).

During the prevalence of this depression, the weather was cloudy or rainy, and the wind remained light or moderate, except in the western quadrants on the 1st and 2d, when it attained the force of a moderate gale (6-7.)

2.—This was a continuation of the disturbance traced as low area viii. on the chart for the preceding month. At the close of March, the depression was apparently near the southern edge of the Banks of Newfoundland, with moderate westerly winds in its rear and light southerly winds to the eastward. On April 1st, there was no material change either in the position of the centre of disturbance or in pressure, which still remained about 29.3, (744.2); the disturbance appears to have moved southward on the 2d, attended by moderate winds, and by the 3d, the region of low barometer was shown near N. 40°, W. 40°, where the readings ranged from 29.66, (753.4) to 29.8, (756.9). Vessels on the forty-third parallel and between W. 45° and 40° had easterly and northeasterly winds, of moderate force, and fair weather, and those to the eastward of W. 40° and between N. 40° and 43°, had moderate southerly breezes. By the 4th, this disturbance probably became merged on the large atmospheric depression (number i.) which extended apparently from the Azores northeastward to the British Isles and western France.

3.—This is a continuation of the disturbance charted and described as low-area i., under "areas of low barometer" in this REVIEW. During its passage northeastward along the coast of the United States this depression displayed great storm-energy; the barometer near the centre of disturbance fell below 28.8 (731.5), and moderate southwesterly to very heavy northwesterly gales prevailed off the coast and at sea, the influence of the disturbance extending southward to about N. 30° and eastward to the sixtieth meridian. Many sailing vessels sustained loss of sails and spars and were driven off to the latitude of the Bermudas.

On the 2d Captain A. Cann, commanding the ship "Tsernoga," in about N. 36° 41', W. 68° 01' reported: "barometer fell from 29.65 (753.1) to 29.15 (740.4) in five hours, with steadily increasing sw. wind; at 6 p. m., ship under lower topsails when a tornado squall suddenly appeared, and in five minutes struck the ship taking the new topsails clean from the bolt-rope; it then steadied to a hard gale, gradually hauling to w. with hail-squalls and very heavy cross sea. April 3d (N. 37° 44', W. 67° 00'), weather the same, hard gale veering from w. to wnw., sea between thirty and forty feet high and running very swiftly; 4th (N. 36° 30', W. 67° 0'), weather worse and squalls more frequent, barometer rising steadily."

The s. s. "Orinoco," W. J. Frazer, commanding, between N. 38° 30', W. 71° 21', and N. 35° 15', W. 67° 20', on the 4th and 5th, had heavy nw. gales throughout, with very high sea.

The s. s. "Madrid" came under the influence of the disturbance on the 3d; Captain M. Garson, commanding that vessel, reported: "3d, in N. 35° 11', W. 59° 10', moderate ssw. gale began at 6 a. m., and veered to w. at 7 p. m., in N. 35° 11', W. 60° 44', barometer 29.42 (747.2)." During the 4th, 5th, and 6th, the "Madrid" had w. by s. to wnw. gales of force 7 to 8, moderating on the 6th to nw., force 3, in about N. 35° 20', W. 65° 5'.

The schooner "Geo. R. Congdon," in 39° 5', W. 72° 20', on the 3d, had a heavy wnw. gale, and high cross sea, sleet, and hail, lasting until the 6th; on the afternoon of the 5th, the vessel had decks swept of everything movable, and when the gale abated the ship's position was found to be N. 37° 50', W. 66° 03'.

During these dates the centre of the disturbance where the pressure was about 28.6 (726.4), was situated between the New England coast and the Banks of Newfoundland, its movements being slow and irregular.

The s. s. "Ontario," W. P. Conch, commanding, reported: "on the 3d, in N. 43° 36', W. 69° 30', 3.30 a. m., lowest reading of the barometer 28.52 (724.4), wind from n. to ne., with heavy snow and sleet."

During the 5th and 6th, vessels to the northward of N. 40°

and between W. 60° and 50° had moderate s. to sw. gales; over the region west of the sixtieth meridian, the westerly and northwesterly gales continued with undiminished force.

By the 7th the storm centre, having moved eastward apparently between the parallels of 40° and 45° north latitude, was shown near N. 43°, W. 47°; it moved slowly eastward and on the 8th it was well defined by the reports near N. 44° W. 42°. During the 7th, the winds between N. 45° and 50° and to the eastward of W. 45°, shifted to east and remained moderate; west of W. 60° the northwesterly winds decreased in force, while the southwesterly winds which on the 6th had prevailed between W. 60° and 50°, had now veered to west and north-west, and blew with the force of a heavy gale. The following reports indicate the severity of the storm during the 8th:

The ship "E. B. Sutton," C. O. Carter, commanding, reported: "8 p. m. 7th, in about N. 40° 30', W. 43° 50', wind backing to sse. force 7-8, heavy and continuous rain, barometer 29.35 (745.5) falling rapidly; 11 p. m. ship hove to, head to ene. wind se. by s. force 9, barometer 29.05 (737.9), wind veering to s. At 3.45 a. m. of the 8th, wind sw. force 10, lowest barometer 28.8 (731.5), clearing, with violent squalls; 9 a. m. wind w. force 9, barometer 29.0 (736.6), heavy sea from sw. and w; for the next twenty-four hours strong gale from wnw. and nw., hard squalls, barometer rising very slowly."

Captain Malet, commanding the s. s. "Marengo," furnishes the following interesting observations taken during the 8th and 9th:

Date.	Hour, (Greenwich time.)	Barometer. (corrected.)		Wind.		Remarks.
		Inches.	Mill.	Direction.	Force, 0-10.	
April 8.....	3 a. m.....	29.20	741.7	se. by s.	5	Position N. 43° 39', W. 41° 27', by D. R.: ship steaming 4.56° W., 9 knots; moderate wind, light rain.
8.....	5 a. m.....	28.95	735.3	se.	6	Heavy rain; gloomy weather.
8.....	6 a. m.....	28.60	728.0	se. by e.	8	Strong gale; continuous rain.
8.....	6.20 a. m.....	28.58	725.9	ese.	10	Squall of hurricane force, lasting seven minutes; raining.
8.....	7 a. m.....	28.62	726.9	ese.	6	Clearing overhead, stars visible, light rain.
8.....	7.30 a. m.....	28.57	725.7	s.	7	Fresh gale, raining, rough sea; brought ship's head sec., easy steam.
8.....	8 a. m.....	28.51	724.1	s.	9	Strong gale, high sea.
8.....	9 a. m.....	28.27	718.0	sw.	10	Hurricane, sea sw., face all foam and spray; lowest barometer reading.
8.....	10 a. m.....	28.27	718.0	sw.	7	Moderate gale, high sea, breaking furiously.
8.....	11 a. m.....	28.27	718.0	sw.	9	Tremendous sea.
8.....	Noon.....	28.29	718.6	wnw.	10	Position N. 43° 10', W. 42° 19', by D. R.: hurricane, ship enveloped in spray and drift, sea and horizon invisible.
8.....	1 p. m.....	28.39	721.1	w. by s.	9	Heavy gale, squalls of hurricane force, sea high and irregular, with dangerous breach.
8.....	2 p. m.....	28.45	722.6	w. by s.	8	Decreasing wind, squally, frequent rain.
8.....	4 p. m.....	28.54	724.9	w. by s.	8	Wild and confused sea, frequent squalls and rain.
8.....	5 p. m.....	28.67	728.2	w.	7	Occasional tremendous sea.
8.....	8 p. m.....	28.77	730.7	w.	7	Wind decreasing, frequent squalls and rain till midnight.
8.....	Midnight.....	28.79	731.3	w.	7	Position N. 42° 50', W. 43° 10', by D. R.: highest wave 5 p. m., estimated height 37 feet, length 200 feet, possessing quick eddying property, with low speed, wind veering to northward, violent rain squalls.
9.....	2 a. m.....	28.84	732.5	nw. by w.	7	Very high nw. sea.
9.....	4 a. m.....	28.85	732.8	nw. by w.	8	Tremendous, confused sea: ship rolling heavily.
9.....	5 a. m.....	28.94	735.1	nw. by w.	7	Position N. 42° 06', W. 42° 51', by observation: experienced a set to ene. since noon of 7th of 25 miles; steaming S. 74° W., 7 knots.
9.....	Noon.....	29.31	744.5	nw. by w.	7	Moderate gale, cloudy, high, confused sea, with angry breach; heavy swell from nw.
9.....	2 p. m.....	29.39	746.5	nw. by w.	6	Increasing wind; sea more regular.
9.....	4 p. m.....	29.43	747.5	nw. by w.	7	Moderating.
9.....	8 p. m.....	29.68	753.9	nw. by w.	7	Strong wind, cloudy, moderate sea.
9.....	Midnight.....	29.77	759.1	nw. by w.	6	

The s. s. "Britannic," H. Perry, commanding, reports: "8th,

between midnight and 4 a. m., Greenwich time, wind from wsw. to s. moderate, barometer falling very rapidly; between 4 and 8 a. m., fresh se. to e. breeze; 8 a. m., barometer 28.95 (735.3), increasing wind; noon (N. 45° 00', W. 39° 40'), moderate e. gale, high confused sea, lowest barometer 28.3 (718.8); 1 p. m., wind shifted suddenly to nne. and settled down to a fresh gale with high cross sea, barometer rising; 4 p. m., barometer 28.5 (723.9), wind n.; 8 p. m., 28.73 (729.7), wind nnw., fresh gale; midnight, barometer 29.05 (737.9), wind nnw., fresh gale."

The report of the s. s. "Helvetia," J. W. Rogers, commanding, is as follows:

Date.	Hour, (Greenwich time.)	Barometer (reduced).		Wind.		Remarks.
		Inches.	Mill.	Direction.	Force 0-10.	
April 8.....	Noon.....	28.52	724.4	se. by e.	6	Position, N. 45° 16', W. 39° 09'; weather, overcast.
8.....	2 p. m.....	28.52	724.4	sse.	6	
8.....	3 p. m.....	28.50	723.9	s.	5	Heavy sea coming up suddenly from sw.
8.....	4 p. m.....	28.14	714.7	s.	5	Heavy sw. and confused sea; heavy clouds and threatening appearance.
8.....	6 p. m.....	28.10	713.7	wnw.	5	
8.....	7 p. m.....	28.14	714.7			
8.....	9 p. m.....	28.26	717.8	wnw.	6	
8.....	10 p. m.....	28.36	720.3			
8.....	11 p. m.....	28.38	720.8	nw. by w.	6	
8.....	Midnight.....	28.41	721.6			
9.....	2 a. m.....	28.51	724.1	nw. by w.	7	
9.....	3 a. m.....	28.63	727.2			
9.....	5 a. m.....	28.73	729.7	nw.	7	Heavy cross sw. and nnw. sea.
9.....	6 a. m.....	28.81	731.8	nw.	6	
9.....	7 a. m.....	28.83	732.3	nw.	6	
9.....	Noon.....	29.18	741.2	nw. by w.	7	Position, N. 42° 31', W. 41° 44'; moderating to fresh breeze during the latter part of the day.

During the 8th the centre of disturbance moved slowly north-eastward and on the 9th it was shown near N. 47°, W. 35°; to the eastward of the thirty-fifth meridian the winds were southwesterly to southeasterly; to the westward of W. 35° they were westerly, northwesterly and northerly.

The s. s. "Wieland," C. Heibich, commanding, appears to have moved eastward in front of the storm-centre, for two or three days, and during that time the southerly winds did not exceed the force of a moderate gale. The following extract is from the report of the "Wieland."

April.	Greenwich time.	Barometer.		Wind.		Position.	
		Inches.	Mill.	Direction.	Force, 0-10.	Lat. N.	Long. W.
	h. m.						
8.....	0 8	28.30	718.8	ssw.	6	44 10	40 1
9.....	0 8	28.33	719.6	s.	6	46 56	34 33
10.....	0 8	28.58	725.9	sse.	5	48 57	27 13

The vessels which were moving eastward in the western quadrants of the disturbance experienced a succession of heavy northerly and northwesterly gales, as shown by the following reports of the steamships "Habsburg" and "Zaandam." Captain Pfeiffer of the "Habsburg," reported as follows: "on April 7, at 9.30 p. m., (Greenwich mean time), in latitude 39° 28' N., longitude 52° 00' W. lowest reading of the barometer was 29.13, (739.9), wind nnw. force 4, weather rainy, light squalls. All that day the barometer remained very low, the highest reading being 29.21 (741.9). At 3 hrs. 10 m., of the 8th, barometer 29.19 (741.4), wind nw. force 8 (Beaufort scale), weather fair; at 7 hrs. 6 m., barometer 29.12 (739.6) wind wnw., force 10, squally, rain, rough and increasing nw. sea; 11 hrs. 2 m., barometer 29.14 (740.1), wind nw., 8 to 10; heavy rain-squalls; 13 hrs., barometer 29.15 (740.4), wind since 11 hrs. from nw. and nnw. to n., blowing in furious gusts of force 10-12; 15 hrs., barometer 29.2 (741.7), wind wnw., force 11, rain; very heavy and dangerous cross sea from nw., n. and ne.; at 22 hrs. 45 min., barometer 29.4 (746.7), wind nw. force 9-10, clearing; sea still very high and

dangerous; 2 hrs. 45 m. of April 9th, barometer 29.5 (749.3), wind nw., 9 rain-squalls; barometer slowly rising, weather clearing, with occasional heavy hail-squalls from nw. and nnw.; high n. sea; at 2 hrs. 22 m. of the 10th (about N. 43°, W. 35°), barometer 29.75 (755.6), wind wnw. force 7-6, light squalls."

The s. s. "Zaandam," E. M. Chevalier, commanding, reported: "from 7th, in N. 42° 00', W. 47° 01' till the 9th, in N. 43° 54', W. 41° 31', heavy gales from nne., backing to nw., with very high sea from all directions; the barometer read 29.22 (742.2) at 11 p. m., Greenwich time, on the 7th and gradually fell to 28.52 (724.4) at 7 a. m. on the 8th; it then began to rise slowly and at 3 p. m. on the 9th it read 29.28 (743.7) wind nnw., force 8."

The s. s. "Denmark," W. Tyson, commanding, on the 8th was in N. 46° 37', W. 28° 35' and steering s. 65° w. reported as follows: "0 h. 8 m., wind se., force 2, increasing to force 5 at 4 hrs., barometer 29.34 (745.2), falling; 9 hrs., wind ssw., force 7; 10 hrs., wsw., force 8; 14 hrs., sw. force 8, sea rough; 20 hrs., wind sw., force 9, sea heavy; 22 hrs., sw., force 6. On the 9th, 0 h. 8 m., (in N. 45° 24', W. 32° 21') barometer 28.66 (728.0) wind w., force 6; 4 hrs., barometer 28.6 (726.4) wind wnw., force 6; 6 hrs., barometer 28.76 (730.5) wind wnw., force 8; 7 hrs., wind nw., force 9, with squalls of force 10, and tempestuous sea; 18 hrs., wind nnw., force 10."

Capt. H. C. Williams, commanding the s. s. "Oregon," between N. 48° 30', W. 39° 09' and N. 45° 27', W. 39° 26', from noon of the 9th to noon of the 10th, reported as follows: "9th, 6 p. m. (Greenwich time), lowest reading of the barometer 28.5 (723.9), whole gale, wind commencing at se. and backing by ne. to nw."

The U. S. steamer "Alert" had the gale in about N. 44°, W. 36° on the 9th, and had one boat stove.

Captain Park, of the s. s. "Scandinavian," referring to the gale, reports as follows: "8th, 10.20 a. m. (Greenwich time), barometer 28.94 (735.1), wind e. by n., force 6; noon (N. 46° 10', W. 40° 1'), barometer 28.72 (729.5), wind veering to ne., with rain and heavy squalls; 5.50 p. m., lowest reading 28.25 (717.5), wind nne., force 6 and increasing, barometer rising; 6.50 p. m., blowing a strong gale from n., with high confused sea and heavy swell from ssw.; 8 p. m., barometer 28.34 (719.8), same wind and weather; midnight, barometer 28.52 (724.4), wind nnw., force 8, sea high and breaking. At 4 a. m. on the 9th, the barometer read 28.9 (734.0), wind n. by w., force 8; 8.45 a. m., barometer 29.16 (740.7); at 10.45 a. m. a heavy sea struck the ship, smashing boats and staving in the funnel, rounded the ship to and found one man missing, he having been washed overboard and lost; at noon (N. 43° 38', W. 44° 47'), the barometer read 29.47 (748.5), wind n. by w., force 7."

During the 9th the disturbance moved slowly northeastward and by the 10th, it was central between N. 30° and 27°, the pressure near the centre ranging from 28.58 (725.9) to 28.86 (733.0).

S. s. "Hohenstaufen," H. Winter, commanding, was between N. 49° 29', W. 17° 20' and N. 47° 18', W. 29° 14' from the 9th to 11th, and reported as follows: "9th, 8 p. m., barometer 29.26 (743.2), wind sw., force 6, rain at intervals, sea swell increasing. 10th, 0 h. a. m., barometer 29.16 (740.7) wind s. by w., force 6; 4 a. m., barometer 29.01 (736.8), wind s. by w., force 6, overcast and squally; 8 a. m., barometer 29.10 (739.1), wind ssw., force 6, increasing; noon, (position not given), barometer 28.86 (733.0), wind ssw., force 8, very heavy sea, ship laboring heavily; 4 p. m., barometer 29.02 (737.1) wind sw. by s., force 8, rain and very heavy sea; 8 p. m., barometer 29.18 (741.2), wind sw. by w., force 8. At 8 a. m. on the 11th, the wind was nw., force 6 and the barometer had risen to 29.71 (754.6)."

On the 10th, very heavy northwesterly gales continued over the region between N. 40° and 50° and W. 40° and 30°; to the westward, between the fortieth and sixtieth meridians, the wind had moderated and hauled again to southward in advance of low area iv., which was now off the coast of Nova Scotia. During the 11th, low area iii. appears to have rapidly diminished in energy, the pressure over the region near W. 25°

having increased about one inch, and the winds became moderate. On 12th and 13th, an area of high pressures formed over the region east of the twenty-fifth meridian, and the depression rapidly filled up.

4.—This was a continuation of low area iii. described under "areas of low barometer," in this REVIEW. On the 10th the disturbance was off the coast of Nova Scotia; as it moved eastward its presence began to be felt during the afternoon, by the s. s. "Marengo," as shown by the shifting of the winds. When that vessel got beyond the influence of low area iii, the barometer rose to 29.91 (758.7), at noon of the 10th (N. 41° 32', W. 47° 00') wind wsw. force 3. By 4 p. m. the barometer had fallen to 29.76 (755.9), and the wind was sse. freshening, rainy weather; at midnight of the 10th, the barometer read 29.58 (751.3), wind ssw. heavy sea swell. At the centre of disturbance, which at midnight of the 10th was near the coast of Nova Scotia, the pressure was about 29.3 (744.2). By the morning of the 11th, the region of least pressure was transferred to about N. 45° W. 45°, where the pressure was 29.4 (746.7) to 29.65 (753.1). Moderate southerly gales prevailed over the region between W. 43° and 35°, with moderate to strong westerly to northwesterly gales from the coasts of the United States and Nova Scotia eastward to W. 45°. On the 12th the s. s. "State of Georgia," G. Moodie, commanding, reported in N. 44° 42', W. 42° 00', barometer 29.51 (749.5), calm; unsettled, rainy weather. Vessels between N. 45° and 50° and W. 40° and 30°, had moderate southerly winds, while to the westward of the s. s. "State of Georgia," the winds were westerly and northerly, moderate to strong in force. During the 13th the depression appears to have been forced southward by an area of high pressure which was north of N. 50° and east of W. 30° and which appeared to be spreading southwestward. By the 14th, the pressure had increased to 29.8 (756.9), the area of low pressure being pushed farther to the westward, and during the day the depression filled in. On the 15th, the atmospheric pressure over the Atlantic from W. 40° westward to the coast of the United States was above 30.0 (762.0); north of N. 45° and from W. 40° eastward to W. 15° it was above 30.15 (765.8). (No reports have been received from the vicinity of the Azores).

5.—This depression appeared off the New England coast during the 16th and 17th, and was probably subsidiary to low-area iv., which passed northeastward from Illinois to the Saint Lawrence valley, and is described under "areas of low barometer" in this REVIEW. When near the coast the lowest reported pressure was about 29.8 (756.9). During the 18th, 19th and 20th the disturbance moved slowly northeastward and eastward, the pressure remaining unchanged; on the last-mentioned date the depression apparently dissipated without having exhibited any decided storm-energy.

6.—The pressure, which for several days had been high over the region north of the fiftieth parallel and between W. 15° and 30°, began to give way during the 21st, and by the 22d it had decreased to 29.9 (759.4) near N. 50°, W. 25°. During the 23d and 24th the disturbance apparently moved eastward to the British Isles, followed by moderate northwesterly winds in its rear. On the 25th centre of depression was off the Irish coast.

7.—This disturbance was central south of Nova Scotia on the 26th, the pressure near the centre being about 29.3, (744.2). During the 27th and 28th, it moved eastward with slowly increasing pressure; on the 29th the course changed to the north-northeastward and at the close of the month the depression was shown off Cape Breton Island.

OCEAN ICE.

Chart i. also exhibits the southern and eastern limits of icebergs observed in the north Atlantic ocean during the period from April 12th to May 10th. This chart is based on reports sent by shipmasters to this office; reports furnished through the co-operation of the "New York Herald Weather Service," and other data published in the "New York Maritime Register."

During the above-mentioned period the southern limit of the ice region was in N. 41° 26', and its eastern limit near W. 46°. Fewer icebergs have been observed than in the preceding months; the marked falling off in the number of reports referring to icebergs seems to indicate that these are rapidly disappearing, at least over that part of the ice region usually traversed by transatlantic steamers. Icebergs were observed farther to the westward than heretofore.

Compared with the chart for the preceding month (March-April) there has been no southerly movement, but a decided change is shown in the position of the eastern limit of the ice-region, it being now about 5° west of that for the preceding month.

A comparison with the chart for the corresponding period of 1883, shows no great difference in the extent of the ice-region. In April-May 1883, the southern and eastern limits were each about half a degree south and east of those for the present year.

A comparison with the chart for the corresponding period in 1882, shows a wide difference in the limits of the ice-region. In 1882, the southern limit extended to N. 40°, or about one and a half degrees further south than in the present year; the eastern limit was near W. 41°, or five degrees east of the present limit. In 1882, icebergs and field-ice were reported as more numerous than in 1884.

Icebergs were reported as follows:

April 12th.—S. S. "Circassian," in N. 42° 58', W. 49° 42', passed a large iceberg; s. s. "Oregon," in N. 44° 23', W. 50° 12', passed an iceberg.

15th.—S. S. "Republic," in N. 41° 13', W. 48° 22', passed a piece of ice.

16th.—S. S. "Brooklyn City," in N. 43°, W. 53°, passed two large icebergs and a quantity of small ice; s. s. "Nevada," in N. 42° 46', W. 51° 15', passed an iceberg.

17th.—S. S. "Oregon," in N. 42° 30', W. 52° 00' saw several pieces of ice.

18th.—S. S. "Furnessia," in N. 42° 40', W. 52° 10' passed a small iceberg.

19th.—S. S. "Saint Ronans," passed a large ice field; steered southward for two hours to clear it; its southern point was in N. 41° 33', W. 47° 16'.

24th.—S. S. "Elder," in N. 43° 57', W. 49° 9' passed a large iceberg bearing n. by w. $\frac{1}{2}$ w., five miles distant; in N. 43° 56', W. 49° 13' passed another large iceberg, same bearings, three miles distant; both aground. In N. 43° 53', W. 49° 24' passed a large iceberg bearing n. by w. $\frac{1}{2}$ w., about eight miles distant; in N. 43° 47', W. 50° 54' passed a very large iceberg bearing n. $\frac{1}{2}$ w., about seven miles distant.

23d.—S. S. "Lord Clive," in N. 42° 40', W. 47° 10' passed an iceberg; also in N. 42° 38', W. 47° 4', passed two small bergs.

24th.—S. S. "Arizona," in N. 44° 00', W. 48° 54', passed a large iceberg; also in N. 43° 54', W. 49° 16', passed two others; bark "Victoria," in N. 41° 26', W. 48° 46', passed an iceberg about two hundred feet high and table shaped, bearing n. about ten miles.

25th.—S. S. "Austral," in N. 42° 10', W. 50° 45', passed an iceberg; s. s. "Grecian Monarch," in N. 42° 20', W. 50° 30', passed an iceberg.

26th.—S. S. "Bolivia," in N. 42° 18', W. 50° 31', passed a large iceberg.

29th.—Bark "Lynwood," in N. 45° 15', W. 56° 51', passed two large icebergs. Bark "Scotland," at New York, May 3, reported a number of icebergs, varying in length from one hundred to five hundred feet, between N. 44° 10', W. 48° 20' and N. 44° 0', W. 51° 10'.

Captain Tranmar, of the s. s. "Lake Champlain," at Quebec, May 1st, reported: "first met ice on the eastern edge of the Banks, in latitude 45° 50' N. on April 23d, and continued to pass icebergs till within a short distance of Cape Race; met gulf ice at midnight of April 27th off South Point, Anticosti, and cleared it at noon on the 29th, having steamed through seventy miles."

May 4th.—S. S. "Oder," in N. 43°, W. 50°, passed a large iceberg.

8th.—S. S. "Ohio," in N. 42° 30', W. 47° 48', passed three large and several small icebergs.

9th.—S. S. "Scythia," in N. 44° 20', W. 45° 56', passed several small icebergs.

10th.—S. S. "Scythia," in N. 42° 53', W. 48° 57', passed four small icebergs.

TEMPERATURE OF THE AIR.

(Expressed in degrees, Fahrenheit.)

The distribution of mean temperature of the United States and Canada for April, 1884, is exhibited on chart ii. by the dotted isothermal lines.

In the following table are shown the normal temperatures for April, the mean temperatures for April, 1884, and the departures from the normal, in the several geographical districts, as deduced from the records of the Signal Service:

Average temperatures for April, 1884.

Districts.	Average for April. Signal-Service ob- servations.		Comparison of April, 1884, with the average for several years.
	For sev- eral years.	For 1884.	
	°	°	°
New England.....	43.3	44.2	0.9 above,
Middle Atlantic states.....	49.8	49.5	0.3 below.
South Atlantic states.....	64.3	59.9	4.4 below.
Florida peninsula.....	72.4	71.3	1.1 below.
Eastern Gulf states.....	65.3	63.3	2.0 below.
Western Gulf states.....	62.2	63.0	0.8 below.
Rio Grande valley.....	76.2	73.4	2.8 below.
Tennessee.....	59.2	57.6	1.6 below.
Ohio valley.....	53.7	51.5	2.2 below.
Lower lake region.....	43.2	42.2	1.0 below.
Upper lake region.....	39.5	38.9	0.6 below.
Extreme northwest.....	37.9	37.6	0.3 below.
Upper Mississippi valley.....	52.9	49.8	3.1 below.
Missouri valley.....	47.9	49.1	1.2 below.
Northern slope.....	42.0	48.4	6.4 below.
Middle slope.....	52.2	58.3	6.1 below.
Southern slope.....	63.7	68.3	4.6 below.
Southern plateau.....	58.8	55.4	3.4 above.
Northern plateau.....	48.7	51.5	2.8 above.
North Pacific coast region.....	49.9	52.2	2.3 above.
Middle Pacific coast region.....	57.1	56.2	0.9 below.
South Pacific coast region.....	61.6	60.7	0.9 below.
Mount Washington, N. H.....	26.6	25.4	1.2 above.
Pike's Peak, Colo.....	13.0	8.5	4.5 below.
Salt Lake City, Utah.....	49.3	48.0	1.3 below.

The following are some of the highest and lowest monthly mean temperatures reported from the Signal Service stations:

Stations reporting highest.		Stations reporting lowest.	
	°		°
Key West, Florida.....	76.2	Pike's Peak, Colorado.....	8.5
Rio Grande City, Texas.....	75.1	Mount Washington, New Hampshire.....	25.4
Brownsville, Texas.....	71.7	Marquette, Michigan.....	35.6
Sanford, Florida.....	69.7	Saint Vincent, Minnesota.....	35.6
Cedar Keys, Florida.....	69.0	Duluth, Minnesota.....	36.0
Jacksonville, Florida.....	68.7	Deadwood, Dakota.....	36.1
New Orleans, Louisiana.....	68.2	Cheyenne, Wyoming.....	36.2
Indianola, Texas.....	67.5	Escanaba, Michigan.....	36.3
Yuma, Arizona.....	67.4	Fort Maginnis, Montana.....	36.6
Galveston, Texas.....	67.2	Alpena, Michigan.....	37.3
Pensacola, Florida.....	66.3	Mackinaw City, Michigan.....	37.3
Mobile, Alabama.....	66.2	Bismarck, Dakota.....	38.7
Savannah, Georgia.....	65.3	Fort Buford, Dakota.....	38.9
Vicksburg, Mississippi.....	63.7	Moorhead, Minnesota.....	38.9

A comparison of the mean temperature of April, 1884, with the normal shows the month to have been colder than the average for April in all districts except in the north Pacific coast region, northern plateau, and in New England. In the north Pacific coast region and northern plateau the mean temperatures were 2° 3 and 2° 8 above the normal respectively; in New England the mean temperature was 0° 9 above the normal. The districts of greatest departures below the normal were the upper Mississippi valley, southern plateau, and the middle and southern slopes, where the departures ranged from 3° 1 to 5° 4. In the middle Atlantic states, lake region, extreme northwest, and in California the departures below the